

(19) World Intellectual Property  
Organization  
International Bureau



530,044  
Rec'd PCT/PTO

01 APR 2005



(43) International Publication Date  
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number  
**WO 2004/036545 A1**

(51) International Patent Classification<sup>7</sup>: **G10L 15/00**

(21) International Application Number:  
PCT/GB2003/004393

(22) International Filing Date: 10 October 2003 (10.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0224012.5 15 October 2002 (15.10.2002) GB

(71) Applicant (for all designated States except US): **CANON KABUSHIKI KAISHA [JP/JP]**; 30-2 3-Chome Shimo-maruko, Ohta-Ku, Tokyo\_146-8501 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **JOST, Uwe, Helmut [DE/GB]**; Canon Research Centre Europe Ltd, The Braccans, London Road, Bracknell, Berkshire RG12 2XH (GB). **ATKINSON, Michael, Richard [GB/GB]**; Canon Research Centre Europe Ltd, The Braccans, London Road, Bracknell, Berkshire RG12 2XH (GB).

(74) Agents: **BERESFORD, Keith, Denis, Lewis et al.**; Beresford & Co., 2-5 Warwick Court, High Holborn, London WC1R 5DH (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

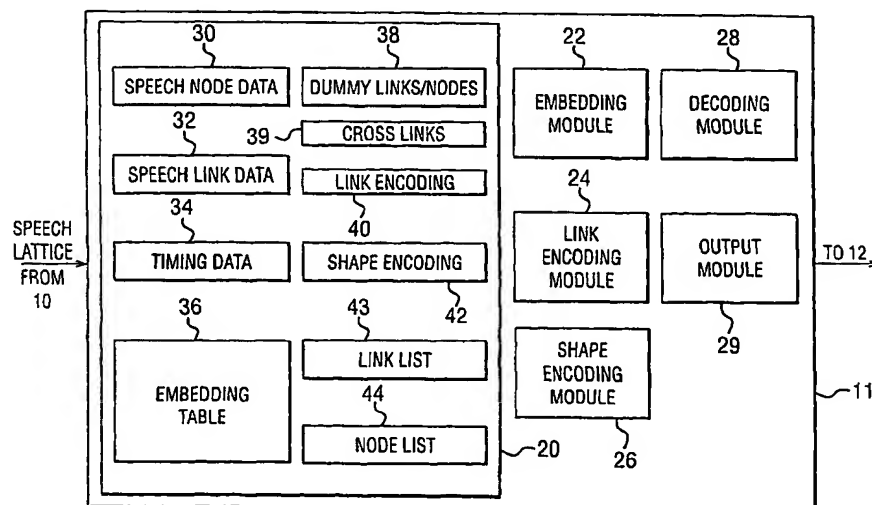
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: LATTICE ENCODING



(57) Abstract: Initially an embedding module (22) determines an embedding of a lattice in a two-dimensional plane. The embedding module (22) then processes the initial embedding to generate a planar graph in which no links cross. The planar graph is then simplified by a link encoding module (24) and data representing the lattice structure is generated by a shape encoding module (26) in which the simplified planar graph is represented by a shape encoding (42) identifying the numbers of links bounding areas defined by the planar graph and data identifying the locations of those areas within the planar graph; and a link list (43) identifying the modifications made to the lattice structure by the link encoding module (24). These encodings are such that the same substructures within a lattice are represented using the same data and hence are suitable for compression using conventional techniques.



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*